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Broadcast Source — 14

12

10

IFig-1

Internet — 24

Server — 22

Portal — 23

Gateway — 26

20

EPG Local Data Store — 30

18

Client — 32

Request 001 - Vote

Request 002 - MP3

Request 003 e-commerce

① 32

Client (PDA)

30 EPG

② 22

Server

TCP/IP

④

③

IP	ID	Request
192.168.1.123	001	Vote
192.168.1.128	002	MP3
192.168.1.125	003	Order

50

Request 001 - Vote - Result

Request 002 - MP3 - Sample MP3 Clip

Request 003 e-commerce Order Confirmation

IFig-2

72 Handheld Application

74 Generate Internet Portal Requests

76 Store Requests Locally

54 Daemon on handheld

54 Check Internet Connection

N

56 Connected?

Y

70 Send Requests

78 Receive Acknowledgement

80 Update Status of Request

82 Notify User

58 Check Incoming Return Message

60 Receive Returned Contents Package

62 Unpack Return Package

64 Parse Request ID

66 Update Request Status

68 Notify User

IFig-3A

84 Check Incoming Requests

86 Parse Request

88 Send Acknowledgement

90 Fulfill Requests with Contents

92 3rd Party Content Provider

94 Pack Requested Contents

96 Send to Client

IFig-3B

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```
- <request id="D4867" type="download" subtype="cd" date="2002-02-22"
      time="14:30:58">
      <uri value="7684D.jar" />
- <customer>
      <id>HH-0231-03</id>
      <name>John Smith</name>
      <email>jsmith@bol.com</email>
  </customer>
</request>
```

IFig-4A

```
- <request id="M18653" type="download" subtype="movie" date="2002-02-29"
      time="16:05:08">
      <uri value="35681M.jar" />
- <customer>
      <id>HH-0237-03</id>
      <name>John Danies</name>
      <email>danies@bol.com</email>
  </customer>
</request>
```
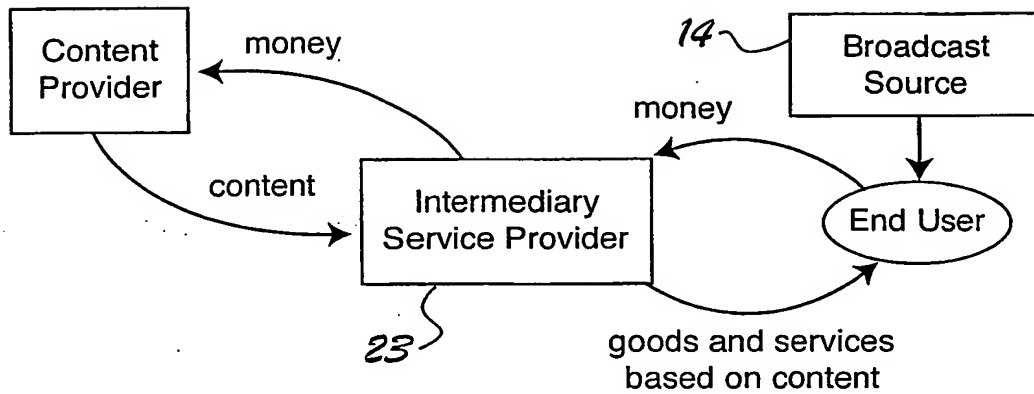
IFig-4B

```
- <request id="E632833" type="epg" date="2002-09-27" time="16:33:32">
      <uri value="epg.jar" />
- <epg>
      <channel>sports, music, 17, 32</channel>
  </epg>
- <customer>
      <id>HH-0231-03</id>
      <name>John Larry</name>
      <email>Larry@bol.com</email>
  </customer>
</request>
```
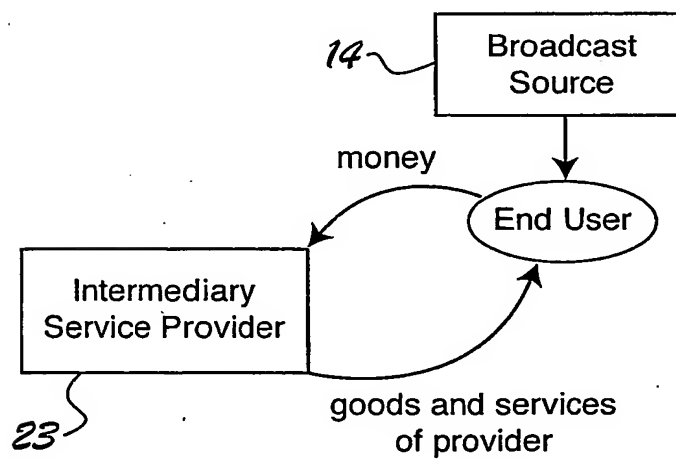
Fig-4C

```
- <request id="C04562" type="order" date="2002-02-22" time="14:45:08">
      <uri value="order.jar" />
   - <bill type="credit card">
    - <card>
          <number>524276870909</number>
          <expire>2003-10</expire>
          <name>John Smith</name>
          <address>2 Research Way, 3rd Floor Princeton, NJ 08540</address>
          <telephone>(609)734-7340</telephone>
      </card>
    - <shipping>
          <name>Tim Smith</name>
          <address>1011 Palm Square Princeton, NJ 08544</address>
          <telephone>(609)347-3470</telephone>
      </shipping>
      </bill>
    - <customer>
          <id>HH-0231-03</id>
          <name>John Smith</name>
          <email>jsmith@bol.com</email>
      </customer>
</request>
```
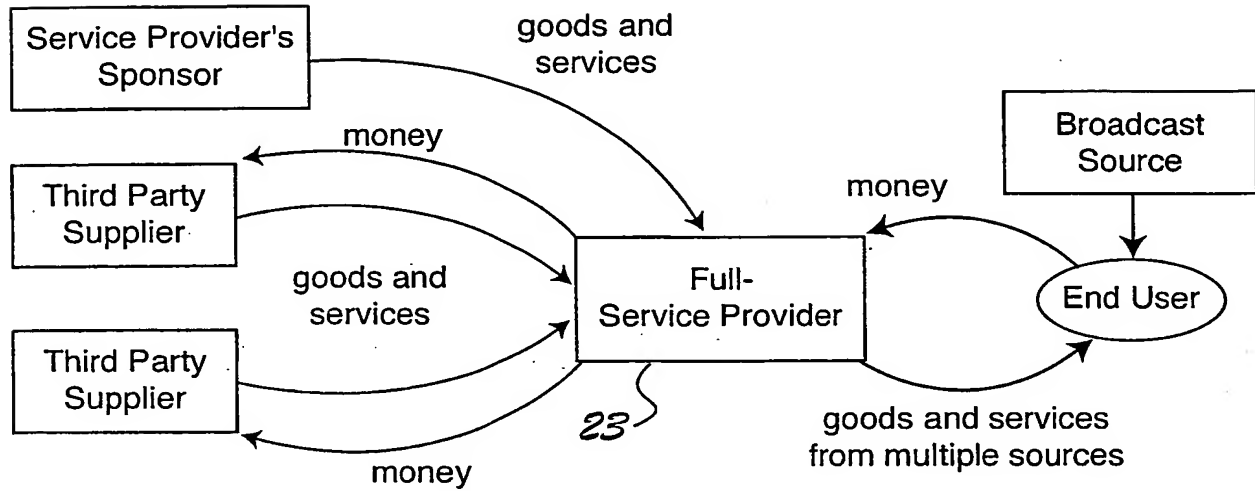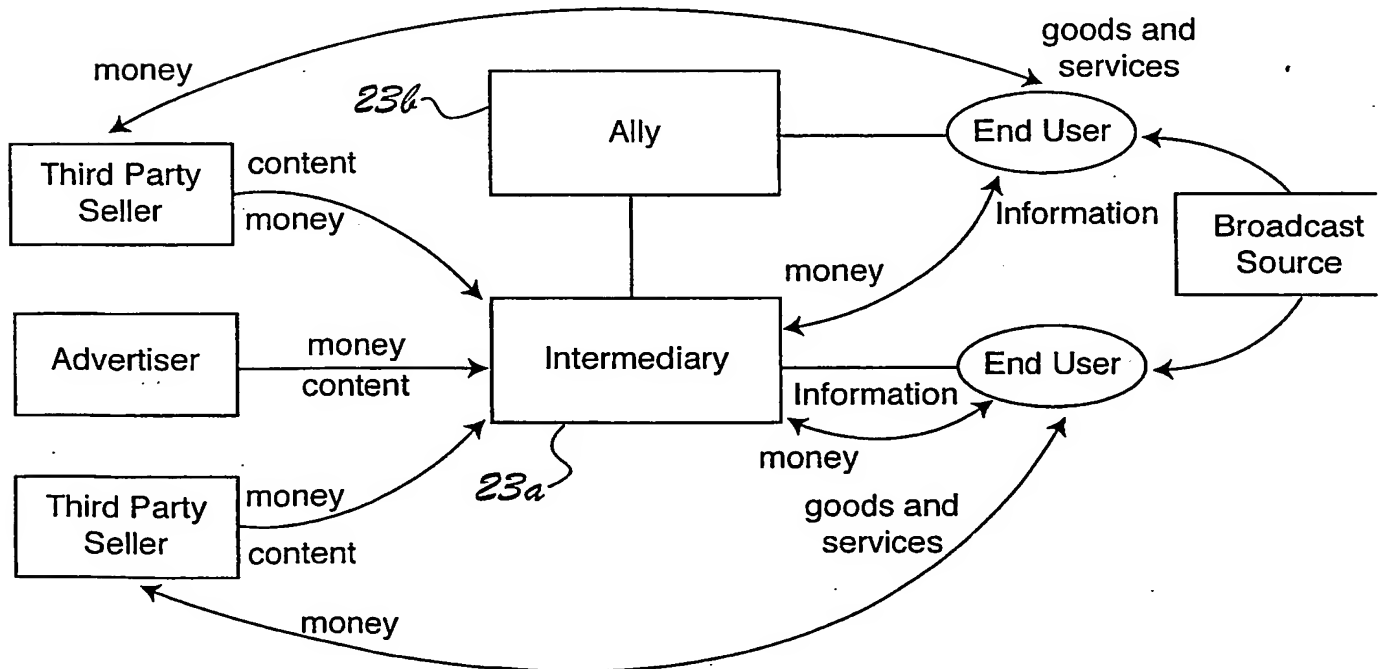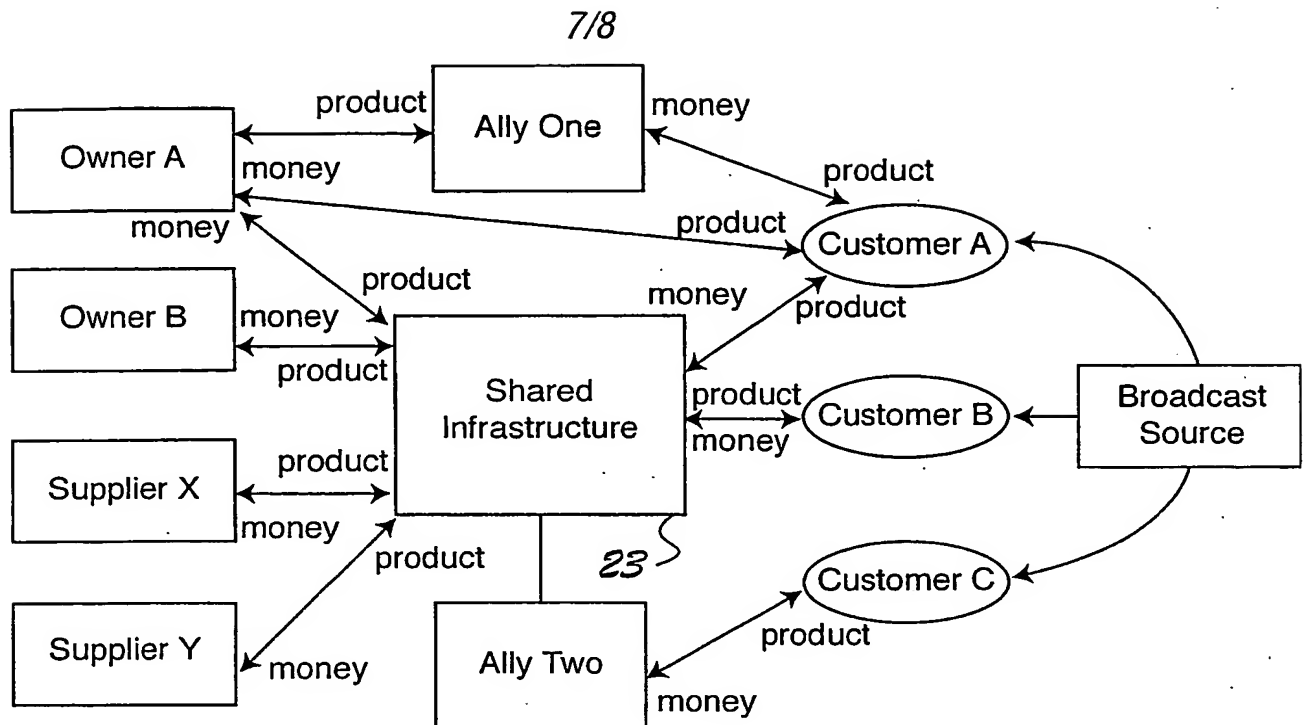
Fig-4D

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Content Provider → money → Content Provider

content

Intermediary Service Provider

Broadcast Source

money

End User

goods and services based on content

Content Provider Model

Fig - 5

Intermediary Service Provider

Broadcast Source

money

End User

goods and services of provider

Direct-To-Customer Model

Fig - 6

Service Provider's Sponsor

goods and services

money

Third Party Supplier

goods and services

Broadcast Source

money

Full-Service Provider

End User

23

Third Party Supplier

money

goods and services from multiple sources

Full-Service Provider Model

Fig-7

goods and services

money

23b

Ally

End User

Third Party Seller

content

money

Information

Broadcast Source

Advertiser

money

content

money

Intermediary

23a

Information

End User

money

Third Party Seller

money

content

goods and services

money

Intermediary Model

Fig-8

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Shared Infrastructure Model

IFig-9
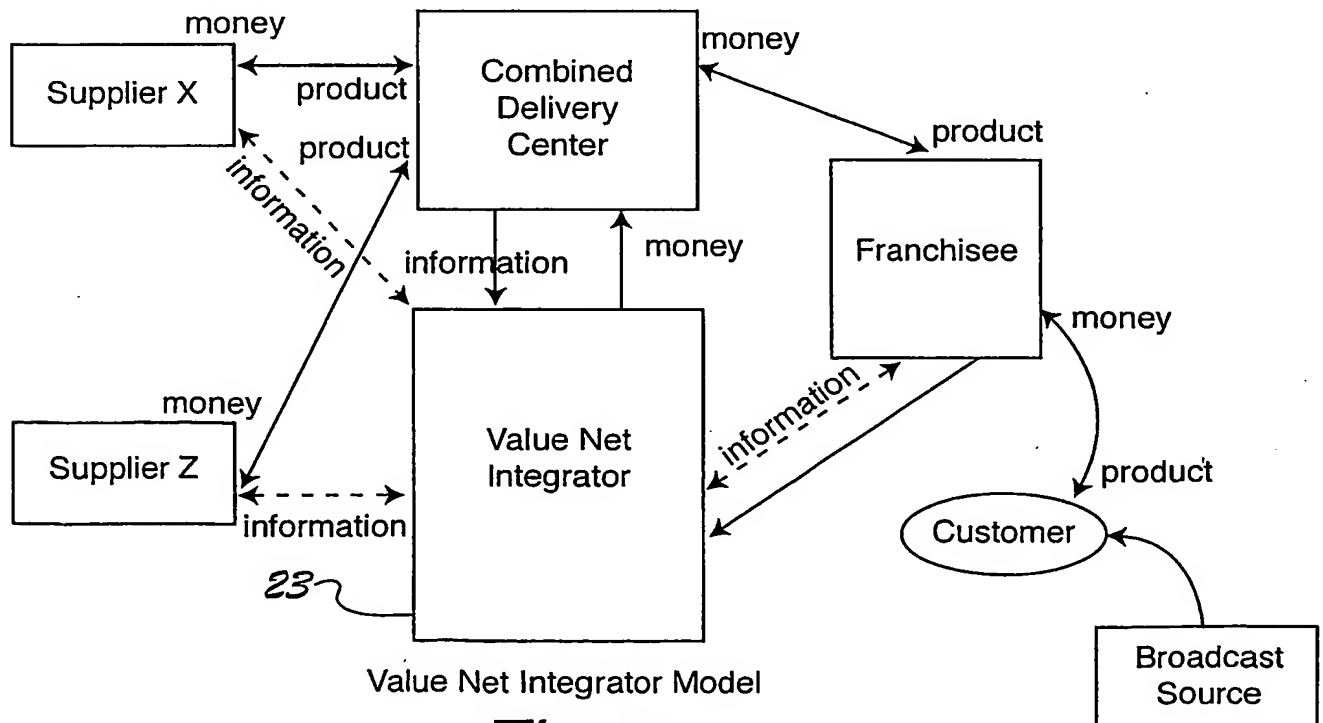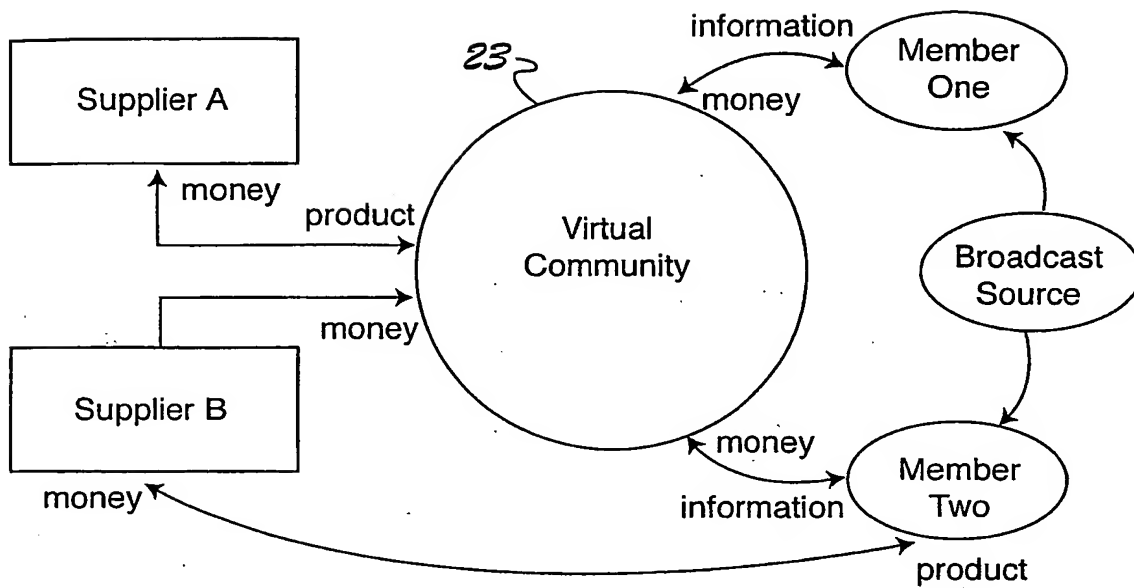

Value Net Integrator Model

IFig-10
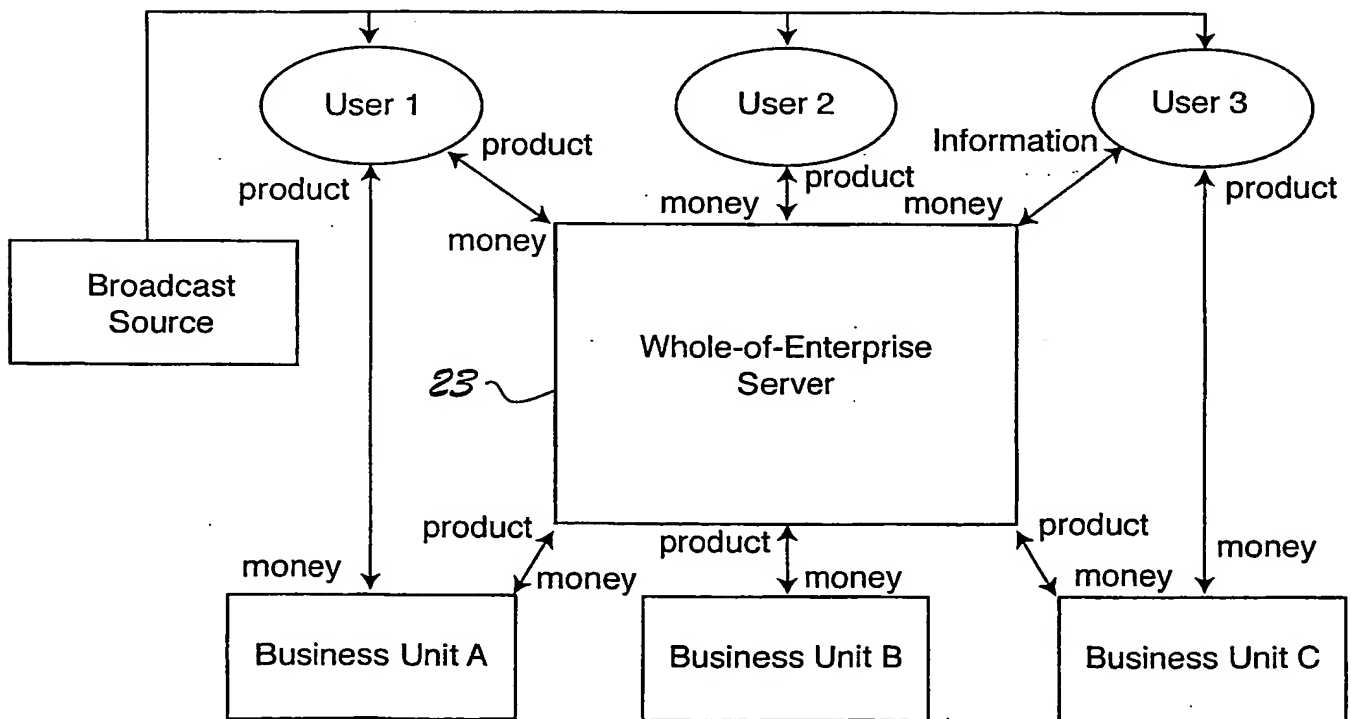
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Virtual Community Model

Fig-11

Whole-of-Enterprise Model

Fig-12